

Appln No.: 10/005,452

Amendment Dated: May 10, 2004

Reply to Office Action of January 14, 2004

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A pH electrode having a pH-sensitive region on an electrically conductive support, said pH-sensitive region comprising
~~a mixture of between 50% and 85% of the total mixture by weight of particles of a Group VA or Group VIII metal~~

between 50 and 85% of the total mixture by weight of metal particles, said metal particles consisting of particles of antimony and optionally particles of Group VIII metals, particles of additional Group VA metals other than antimony, or both, and

a polymer substrate of a non-shrinking polyimide having a resistivity of 10 to 100 Kohms/square;

wherein the mixture of metal particles is incorporated in, or applied to, a the polymer substrate of a non-shrinking plastic selected from polyimides, the polymer substrate having a resistivity of 10 to 100 Kohms/square-

the metal particles including antimony particles and, wherein when said particles are incorporated into said resistive polymer substrate, having said pH-sensitive region is abraded to expose said particles.

2. (currently amended) A pH electrode according to claim 1, wherein said metal particles component further includes particles of platinum, ruthenium or bismuth.
3. (original) A pH electrode according to claim 1 having a pH-sensitive tip or head.
4. (original) A pH electrode according to claim 3, wherein the pH-sensitive head is cone shaped.
5. (original) A pH electrode according to claim 1, wherein the polymer substrate is made partially electrically conductive with carbon and/or silver.
6. (original) A pH electrode according to claim 5, wherein the polymer substrate includes 5 to 25% of carbon black.
7. (original) A pH electrode according to claim 1, wherein the metal particles have a maximum particle size of about 50 microns.

Appln No.: 10/005,452

Amendment Dated: May 10, 2004

Reply to Office Action of January 14, 2004

8. (original) A pH electrode according to claim 1, wherein the metal particles are on the outer surface of the polymer substrate.
9. (original) A pH electrode according to claim 1, wherein the pH-sensitive region comprises a mixture of the metal particles incorporated into the polymer substrate.
10. (original) A pH electrode according to claim 8, wherein the pH-sensitive region has a smooth outer surface.
11. (original) A pH electrode according to claim 1, wherein the support is metallic wire.
12. (original) A pH electrode according to claim 10, wherein the support is copper wire.
13. (original) A pH electrode according to claim 1, further comprising means for calibration of the pH electrode with respect to oxygen concentration.
14. (original) A pH electrode according to claim 12, wherein said means is a meter for measuring oxygen concentration.
15. (original) A pH electrode according to claim 1, wherein the pH-sensitive region forms a band extending around a tubular support.
16. (currently amended) A method for preparing a pH electrode comprising formation of a pH-sensitive region on an electrically conductive support by applying thereto a polymer substrate of a non-shrinking plastic selected from polyimides, having a resistivity of 10 to 100 Kohms/square, said polymer substrate further comprising between 50% and 80% of the total mixture by weight of particles, of a Group VA or Group VIII metal between 50 and 85% of the total mixture by weight of metal particles, said metal particles consisting of particles of antimony and optionally particles of Group VIII metals, particles of additional Group VA metals other than antimony, or both incorporated therein or applied thereto either before or after application of said polymer substrate to said support, the polymer substrate having a resistivity of 10 to 100 Kohms/square-

the metal particles including antimony particles-
wherein and, when said particles are incorporated into said resistive polymer substrate, having said pH-sensitive region is abraded to expose said particles.
17. (currently amended) A method according to claim 16, wherein said metal particles component further includes particles of platinum, ruthenium or bismuth.

Appln No.: 10/005,452

Amendment Dated: May 10, 2004

Reply to Office Action of January 14, 2004

18. (original) A method according to claim 16, wherein said pH-sensitive region is formed as a tip or head on said support.
19. (original) A method according to claim 18, wherein the pH-sensitive region is formed as a cone-shaped head.
20. (original) A method according to claim 16, wherein the polymer substrate is made partially electrically conductive with carbon and/or silver.
21. (original) A method according to claim 14, wherein the metal particles are applied, by sprinkling, dusting or dipping, to the substrate.
22. (original) A method according to claim 14, wherein the metal particles are incorporated by mixing into the substrate.
23. (original) A method according to claim 22, wherein the pH-sensitive region has a smooth outer surface.
24. (original) A method according to claim 14, wherein the support is metallic wire.
25. (original) A method according to claim 24, wherein the support is copper wire.
26. (original) A method according to claim 14, wherein the pH-sensitive region forms a band extending around a tubular support.
27. (currently amended) A method of measuring the pH of a sample, comprising the steps of contacting Use of a pH electrode according to claim 1 and a reference electrode with the sample and determining the potential difference between the pH electrode and the reference electrode ;to measure thereby measuring the pH of the sample.
28. (currently amended) A method of measuring the pH of a sample, comprising the steps of contacting Use of a pH electrode prepared by the method of claim 14 and a reference electrode with the sample and determining the potential difference between the pH electrode and the reference electrode ;to measure thereby measuring the pH of the sample.
29. (currently amended) The method Use according to claim 27, wherein the pH of a body fluid, muscle, the gastrointestinal tract or the respiratory tract is measured.
30. (currently amended) The method Use according to claim 29, wherein the pH of extracellular fluid, blood, lymph, cerebro-spinal fluid, cardiac muscle, skeletal muscle, smooth muscle, the

Appn No.: 10/005,452

Amendment Dated: May 10, 2004

Reply to Office Action of January 14, 2004

oral cavity, the pharynx, the oesophagus, the stomach, the small intestine, the colon, the biliary tract or the respiratory tract is measured.